

Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-45 are pending in the application, with 1 and 41 being the independent claims. Claim 46 has been cancelled without prejudice to or disclaimer of the subject matter therein. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Rejections under 35 U.S.C. § 102

On page 2 of the Office Action the Examiner rejected claims 1-3, 6-10, 12-14, 28-29, 31-36, and 39-45 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,867,451 ("Chang"). Applicants respectfully traverse.

Chang teaches to attach a hydrophone module or cap 56 (FIGS. 2, 5, 6a and 6b), to top and bottom mounts 78 and 82, which are secured to a cable 16. Within the hydrophone cap 56 is a cavity 134 that holds a hydrophone assembly 150.

The removal of the hydrophone cap 56 from the hydrophone housing 20 does not provide the user with access to "circuitry fitted inside a curved space with said electronics carrier," as recited in claim 1. Rather, the removal of the hydrophone cap 56 simply separates the cap 56 and the enclosed hydrophone assembly 150 from the mounts 78 and 82, exposing a surface or recess 86, as shown in FIG. 2 of Chang.

The cavity 134 of Chang is not “a curved space within said electronics carrier” as recited in claim 1 of the present invention. Claim 1 defines the electronics carrier with respect to a pair of rigid end-fittings:

a pair of rigid end-fittings spaced apart axially by said electronics carrier
for connecting to a section of said seismic data acquisition cable.

In Chang, the closest feature to an electronics carrier, as recited in claim 1, are the mounts 78 and 82, because they connect to a cable. However, the cavity 134 is not within the mount 78 and 82. Thus, the cavity 134 cannot be said to be “a curved space within said electronics carrier,” as recited in claim 1.

Claim 1 further recites that the curved space is defined by “an axial hole ... formed for accommodating a cable,” and “said rigid end fittings.” In Chang, however, the cavity 134 is defined by the access means (i.e., hydrophone cap 56) and the receiving surface 130.

Chang also fails to teach an inner tube as recited in claim 1. The mounts 78 and 82 of Chang are effectively solid, with the exception of wire clearance recess 90, which functions merely to allow connection of lead wires 154 to the appropriate data transmitting wires 36 of cable 16. (See FIG. 6a, and col. 4, lines 60 to 67 of Chang). The Examiner refers to FIG. 4 of Chang as showing an inner tube. FIG. 4 of Chang, however, depicts only the cable, and not any feature of the hydrophone housing (See col. 2, lines 64-65, and col. 3, lines 58-59 of Chang).

Claim 1 further recites, “wrap-around circuitry fitted inside a curved space within said electronics carrier.” Chang fails to teach both “wrap-round circuitry” and “circuitry fitted inside a curved space.”

For at least these reasons, Chang does not teach or suggest every feature recited in claim 1. Reconsideration and withdrawal of the rejection of claim 1 is requested.

Claims 1-3, 6-10, 12-14, 28-29, 31-36, 39, and 40 depend, directly or indirectly, from claim 1. These claims are thus patentable for at least the reasons provided above with respect to claim 1, and further in view of the additional features recited therein. Reconsideration and withdrawal of the rejection of these claims is requested.

Claim 41, as amended, recites, among other features, “a carrier defining a space for housing of electronics.” The carrier is further defined in claim 41 by “a pair of end-fittings spaced apart axially by said carrier for connection of said module to a section of cable.” The space is further defined in claim 41 as “being intermediate said inner tube, said access means and said end fittings.” Thus, the space is defined by the carrier, between the end-fittings, and between the inner tube and the access means.

In Chang, the closest feature to a carrier, as recited in claim 41, are the mounts 78 and 82, because they connect to a cable. However, the cavity 134 is not defined by the mounts 78 and 82, between the end-fittings, and between an inner tube and an access means. Thus, the cavity 134 cannot be said to be a “space” as recited in claim 41.

The Examiner contends at page 6 of the Office Action that the features depicted in Chang by reference numbers 118, 74, 178, 56, 168, and 102, together constitute “selectively removable access means.” Claim 41 recites, among other features:

said access means being operable to provide access to said space without decoupling or removing the module from the cable.

In Chang, removal of the screws 102 that connect mount 78 to mount 82 result in decoupling of mounts 78 and 82 from the cable 16. Thus, neither the surface 74, the surface 178, nor the screws 102, can anticipate the access means of claim 41.

At page 6 of the Office Action, the Examiner contends that item 42 of FIG. 4 of Chang teaches an “inner tube” as recited in claim 41. However, item 42 of FIG. 4 depicts a clear protective sheath that encases the optical fibers. In other words, item 42 is part of the cable, as evidenced by col. 2, lines 64-65, col. 3, lines 18-24, and col. 3, lines 58-59, of Chang. Further claim 41 recites a “hole disposed along said module, between said end-fittings, said hold being sized so as to accommodate threading of said cable through said module” and the “inner tube” is recited as “enclosing a major portion of said hole.” Hence, it follows that both the “hole” and the “inner tube” are a part of the “module” as opposed to being part of the cable.

For at least these reasons, Chang does not teach or suggest every feature of claim 41, as amended. Reconsideration and withdrawal of the rejection of claim 41 is requested.

Claims 42-45 depend, directly or indirectly, from claim 41. Claims 42-45 are thus patentable for at least the reasons provided above with respect to claim 41, and further in view of the additional features recited therein. Reconsideration and withdrawal of the rejection of claims 42-45 is requested.

On page 7 of the Office Action, the Examiner rejected claims 1, 15-21, 23, 25, 28, 30-34, 36, 38 and 39-41 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application No.2003/0117025 ("Rouquette"). Applicants respectfully traverse.

Regarding claim 1, the Examiner contends at page 7 of the Office Action that paragraph [0113] of Rouquette teaches an “access means for providing an easy-to-reach access to a wrap-around circuitry fitted inside a curved space within said electronics carrier,” as recited in claim 1. However, the only reference made to accessing the contents of an SEM 14 in paragraph [0113] reads:

“Further, each cable segment may include an outer sheath 15 secured to waterproof connectors that attach to the SEM’s 14. This configuration allows access for servicing the electronics in the individual SEM’s 14.”

Paragraph [0113] is silent in relation to “easy-to-reach access to a wrap-around circuitry fitted inside a curved space within said electronics carrier,” which is discussed, for example, at page 11, lines 6 to 10 of the present specification.

At the bottom of page 7 of the Office Action, the Examiner contends that FIG. 2 and paragraph [0113] of Rouquette teach “an axial hole formed in the electronics carrier and the rigid end-fittings defining the curved space between the axial hole, the access means and the rigid end-fittings.” Paragraph [0113] of Rouquette states:

“The underwater cable 2 may be a continuous streamer cable or be discontinuous and divided into a plurality of cable segments. For example, FIG. 2 shows a portion of an underwater cable 2 which may be divided into a plurality of cable segments 13 by a plurality of streamer electronics modules (SEM's) 14. In the illustrated embodiment, the cable segments 13 are alternately arranged with the SEM's 14 to form the underwater section 4.”

Paragraph [0113] thus clarifies that the streamer illustrated in FIG. 2 is discontinuous, with each of the discontinuous cable segments 13 being alternately arranged with SEM’s 14 to form the cable. While paragraph [0113] notes that the cable “may be a continuous steamer cable,” there is no detail in this regard, and no suggestion

that the cable in FIG. 2 is a continuous cable. Neither paragraph [0113], nor FIG. 2 of Rouquette, teach or suggest “an axial hole formed in the electronics carrier and the rigid end-fittings defining the curved space between the axial hole, the access means and the rigid end-fittings,” as recited in claim 1.

At page 8 of the Office Action, the Examiner contends that “Rouquette discloses the cable going through the electronics module, and therefore there is an axial hole going through which this cable passes.” As noted above, Rouquette teaches a discontinuous cable with SEM’s, in which the cable presumably does not pass through SEMS. Rouquette only mentions a continuous cable, without any discussion of SEM’s. Rouquette, therefore, does not teach or suggest a cable going through the electronics module or an axial hole through which the cable passes, as recited in claim 1.

For at least these reasons, reconsideration and withdrawal of the rejection of claim 1 is requested.

Claims 15-21, 23, 25, 28, 30-34, 36, 38, 39, and 40 depend, directly or indirectly, from claim 1. These claims are thus patentable for at least the reasons provided above with respect to claim 1, and further in view of the additional features recited therein. Reconsideration and withdrawal of the rejection of these claims is requested.

Regarding claim 41, the Examiner cites generally to paragraphs [0113], [0133], [0136], and [0226], and to FIG. 2 of Rouquette.

FIG. 2 of Rouquette illustrates a cable in which streamer electronics modules (SEMs) are depicted by empty blocks labeled 14. Each block has two opposing sides to

which cable segments 13 are connected. However, as the blocks 14 are illustrated without any detail, FIG. 2 provides no further information relating to the internal structure of the SEMs 14.

Paragraph [0113] of Rouquette teaches that an underwater cable may be a continuous streamer cable or discontinuous and divided into a plurality of cable segments. No details or examples are provided for a continuous cable. FIG. 2 provides an example discontinuous cable, in which the cable segments 13 are divided by, and alternately arranged with the SEMs 14 to form the underwater section 4. Hence, it follows that for the arrangement depicted in FIG. 2, a cable strength member does not extend axially through each of the SEMs 14. Paragraph [0113] further teaches that each cable segment 13 may include an outer sheath 15 secured to waterproof connectors that attach to the SEMs 14, thereby allowing access for servicing of the electronics within the SEMs 14. However, Rouquette is silent as to whether this access requires decoupling or removal of the SEMs 14 from the cable.

Paragraph [0133] of Rouquette discusses power distribution along the cable 2 using a hierarchical tree structure, which is largely irrelevant to the present invention as recited in claim 41, except to confirm that electronics are housed within the SEMs 14 and to confirm that connections are made to the power supply. However, paragraph [0133] does not teach or suggest a hole within the SEMs 14 through which the cable may be threaded, or an inner tube enclosing a major portion of the hole.

Paragraph [0136] of Rouquette teaches that underwater cable power conversion circuits are preferably disposed within the SEMs 14. This confirms that electronics are housed within the SEMs 14 and that connections are made to the power supply.

However, the paragraph does not teach or suggest a hole within the SEM 14 through which the cable may be threaded, or an inner tube enclosing a major portion of the hole.

Paragraph [0226] of Rouquette teaches that repeaters are preferably disposed within the SEMs 14. This paragraph also teaches the architecture of repeaters in combination with data communications channels. Once again, this merely confirms that electronics are housed within the SEMs 14 and that connections are made to various circuits. However, the paragraph does not teach or suggest a hole within the SEMs through which the cable may be threaded, or an inner tube enclosing a major portion of the hole.

For at least these reasons, reconsideration and withdrawal of the rejection of claim 41 is requested.

Claims 4, 5, 11, 15, 16-27, 37, and 38 were rejected under 35 U.S.C. § 103(a) as being unpatentable over one or more of Chang, Rouquette, U.S. Patent No. 4,500,980 ("Copeland"), U.S. Patent No. 5,883,857 ("Pearce"), U.S. Patent No. 4,695,787 (Billet *et al.*), U.S. Patent No. 3,939,464 ("Swenson"), and U.S. Patent No. 4,526,430 ("Williams"). Applicants respectfully traverse.

Claims 4-5, 11, 15, 16-27, 37, and 38 depend directly or indirectly from Claim 1. Applicants assert that claims 4-5, 11, 15, 16-27, 37, and 38 distinguish over Chang for reasons similar to those set forth above with respect to independent claim 1. Applicants further assert that neither Rouquette, Copeland, Pearce, Billet, Swenson and/or Williams, alone or in combination with one another, provide the teachings missing from Chang nor would one of ordinary skill in the art have been motivated to use any rational

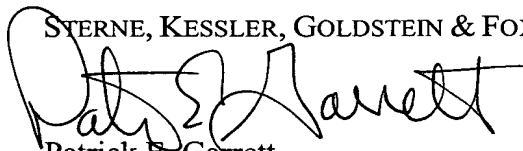
combination of Chang with any of Copeland, Rouquette, Pearce, Billet, Swenson and/or Williams to result in any of claims 4-5, 11, 15, 16-27, 37, and 38. Reconsideration and withdrawal of the rejection of claims 4-5, 11, 15, 16-27, 37, and 38 is requested.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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